

Before the
Federal Communications Commission
WASHINGTON, D.C. 20554

In the Matter of
STATE OF MARYLAND
Request for Waiver of 47 CFR §90.531(b)(7)
to permit operation of Air-to-Ground radio
equipment on 700 MHz Secondary Trunking
Channels
RM-11433

ORDER

Adopted: August 20, 2012

Released: August 20, 2012

By the Chief, Public Safety and Homeland Security Bureau:

I. INTRODUCTION AND BACKGROUND

1. By this Order, the Public Safety and Homeland Security Bureau (PSHSB or Bureau) grants a petition for waiver of the Commission’s rules filed by the State of Maryland (Maryland) requesting authorization to use 700 MHz narrowband secondary trunking channels (secondary trunking channels) for air-to-ground interoperable radio communications. In granting this waiver, we find that Maryland must comply with the operational and technical limitations specified in Section 90.423 of the Commission’s rules. Consistent with this rule section, Maryland’s air-to-ground operations must accept interference from other licensees and must not cause harmful interference to other licensees.

2. Maryland seeks to use the 700 MHz narrowband secondary trunking channels for air-to-ground interoperable communications in conjunction with its Maryland First Responders Interoperable Radio System Team (Maryland FiRST) system, a statewide inter-governmental 700 MHz public safety narrowband network, and the Maryland State Police-Maryland Institute for Emergency Medical Services Systems (MSP-MIEMSS) emergency medical system. Specifically, Maryland proposes to use the

1 Petition for Waiver of Rules, State of Maryland, RM-11433 (filed Feb. 24, 2012) (Maryland Petition). Maryland’s petition raises similar issues to a pending petition for rulemaking (RM-11433) previously filed by the National Public Safety Telecommunications Council (NPSTC). See Public Safety and Homeland Security Bureau Seeks Comment on NPSTC’s Petition for Rulemaking to Allow Aircraft Voice Operations on Secondary Trunking Channels in the 700 MHz Band, Public Notice, RM-11433, 26 FCC Rcd 9405 (2011). Accordingly, we have incorporated Maryland’s waiver request into that proceeding, which remains pending. However, in reaching the merits of Maryland’s waiver request in this Order, we do not prejudge the outcome of the NPSTC petition for rulemaking. The NPSTC petition will be addressed separately, and this waiver is subject to the outcome of any broader proceeding that the Commission may undertake with respect to the NPSTC petition in the future.

2 Sixteen 700 MHz narrowband channel pairs are reserved for secondary trunking operations: 21/981, 22/982, 101/1061, 102/1062, 181/1141, 182/1142, 261/1221, 262/1222, 659/1619, 660/1620, 739/1699, 740/1700, 819/1779, 820/1780, 899/1859, and 900/1860. Under the existing rules, these channel pairs may only be used in combination with their respective adjacent Interoperability channel pairs to form 25 kHz bandwidth channels for trunked system use. See 47 CFR § 90.531(b)(7).

3 Maryland Petition at 5.

secondary trunking channels to enable first responder aircraft, such as rescue helicopters operated by the Maryland State Police (MSP), to communicate with ground-based police and EMS vehicles using the Maryland FiRST system.⁴ Maryland states that, “[t]he first phase of the Maryland FiRST network is now under construction and scheduled to be operational before the end of calendar year 2012.... Programming of radios will begin this summer followed by field coverage testing. Subsequent phases will follow based upon the appropriations of the Maryland General Assembly.”⁵ Therefore, Maryland states that, “[t]he timeline for the issuance of this Petition for Waiver request is critical to permit compliance with the Commission’s narrowbanding deadline.”⁶

3. Maryland contends that the secondary trunking channels are the most suitable channels in the 700 MHz narrowband spectrum for airborne use because they are not being used terrestrially and because airborne use of other 700 or 800 MHz narrowband channels would interfere with terrestrial operations. Specifically, Maryland states that using secondary trunking channels is preferable to using state-licensed 700 MHz channels for airborne operations because “aircraft employing low-power radios operating on state 700 MHz frequencies would likely interfere with adjoining state operations.”⁷ Maryland also submits that no licenses have been issued for the secondary trunking channels, which “have remained fallow relative to use throughout the United States.”⁸

4. Maryland states that if its petition is granted, it “will follow the Commission’s rules for the use of national interoperability channels as found in Subpart R of Part 90” and “will permit and encourage the aircraft of other governments and commercial air ambulance aircraft transporting critically injured or ill patients to interoperate with its Emergency Medical Systems Control center (SYSCOM) pursuant to the Commission’s rules and relevant statutes.”⁹ Maryland anticipates that the channels would be used in law enforcement, fire, and EMS aircraft operated by county governments within the state, the City of Baltimore, the State of Delaware,¹⁰ and the helicopter fleets of “any adjoining state or local government in an adjoining state, or commercial air ambulance transporting critically injured trauma victims into Maryland for emergency life-saving treatment.”¹¹

5. On April 17, 2012, the Bureau released a Public Notice seeking comment on the Maryland Petition.¹² In response to the Public Notice, the Bureau received comments from several states bordering Maryland, as well as from public safety entities and other interested parties.¹³

⁴ *Id.* at 7.

⁵ *Id.* at 10-11.

⁶ *Id.* See also 47 C.F.R. §§ 90.203(j) and 90.209(b)(5).

⁷ *Id.* at 3. Maryland notes that Virginia “makes extensive use of the 700 MHz state frequencies for low-power digital vehicular repeater (DVRS) use,” which would be susceptible to interference if Maryland used state channels for airborne communications. *Id.*

⁸ *Id.* at 4.

⁹ *Id.* at 5-6.

¹⁰ Maryland states that Delaware rescue helicopters regularly fly critically injured victims to the Shock-Trauma Center in Baltimore. *Id.* at 9.

¹¹ *Id.*

¹² Public Safety and Homeland Security Bureau Seeks Comment on Petition for Waiver of Rules Filed By the State of Maryland Requesting Permission to Operate Air-to-Ground Radio Equipment on 700 MHz Secondary Trunking Channels, 27 FCC Rcd 4078 (rel. Apr. 17, 2012).

¹³ Commenting parties are listed in the Appendix to this Order.

II. DISCUSSION

6. Under Section 1.925 of the Commission's rules, a petitioner must demonstrate that "the underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that the grant of waiver would be in the public interest," or that, "in view of the unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative."¹⁴ The applicant faces a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver.¹⁵

7. With regard to the first prong of the Commission's waiver standard, Maryland emphasizes that its waiver will not conflict with the underlying purpose of the rules governing secondary trunking channels because no jurisdiction in the region uses or plans to use the channels to create 25 kHz frequencies for trunked radio systems.¹⁶ Maryland states that because the P25 technical standard (which does not use 25 kHz channels) has become the standard for 700 MHz interoperable channel use, Maryland has "no intention of operating or permitting 25 [k]Hz trunked public safety interoperability systems" and "none of Maryland's neighboring states have indicated any interest in operating such a trunked interoperability system with 25 [k]Hz channels."¹⁷ Maryland also states that it "will employ appropriate engineering techniques" to ensure that airborne use of the secondary trunking channels does not cause interference to adjacent channel users.¹⁸ Maryland commits to coordinate with adjoining states that may seek to operate 700 MHz fixed base stations on the adjacent interoperability channels and indicates it will "at all times" maintain a geographical separation sufficient to provide such base stations with contour overlap protection.¹⁹

8. With regard to the second prong of the waiver standard, Maryland provides a technical analysis showing that using other 700 MHz or 800 MHz narrowband channels for airborne communications could create unacceptable interference in neighboring states that use these channels for terrestrial operations. Maryland notes that aircraft operating on 700 MHz state-licensed channels near interstate borders would be unable to comply with the requirement that signal field strength be limited to 40 dBu/m at the state border.²⁰ Moreover, even if Maryland negotiated agreements with adjacent states to use state-licensed channels, Maryland notes that there would still be a risk of interference extending to non-adjacent states such as New Jersey or Ohio.²¹ Maryland's technical analysis also indicates that 700 MHz general pool channels and 800 MHz public safety channels would not be suitable for airborne use,

¹⁴ 47 C.F.R. § 1.925.

¹⁵ *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969), *aff'd*, 459 F.2d 1203 (1973), *cert. denied*, 409 U.S. 1027 (1972) (citing *Rio Grande Family Radio Fellowship, Inc. v. FCC*, 406 F.2d 664 (D.C. Cir. 1968)); *Birach Broad. Corp., Memorandum Opinion and Order*, 18 FCC Rcd 1414, 1415 (2003).

¹⁶ Maryland Petition at 15.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.* at 15-16.

²⁰ *Id.* at 16. See Public Safety 700 MHz Band—State License Option to Apply Runs Through December 31, 2001, *Public Notice*, 16 FCC Rcd 3547 (rel. Feb. 15, 2001) (State licensees may operate facilities in interstate boundary areas so long as the field strength of station transmissions is limited to 40 dBu/m at the licensee's geographic border).

²¹ Maryland Petition at 17-18.

because these channels are heavily used for terrestrial operations.²² Maryland submits, therefore, that using the secondary trunking channels for public safety air-to-ground operations is the only reasonably available alternative.²³

9. The Commonwealth of Pennsylvania, the District of Columbia, the State of Delaware, the Commonwealth of Virginia, and the State of West Virginia all support Maryland's Petition.²⁴ Pennsylvania asserts that the 700 MHz narrowband spectrum is needed for coordination of air/ground activities such as medical evacuation, forest fire operations, and fugitive search operations.²⁵ The State of West Virginia argues that "[a]s part of a critical strategy for transporting critically injured trauma patients, the helicopters of the Maryland State Police could be utilized to transport victims to Shock Trauma in Baltimore or other critical care facilities in Maryland."²⁶ West Virginia further contends that "the Maryland Petition represents a unique opportunity to evaluate a potential nationwide air-to-ground 700 MHz communications strategy," because Maryland has "unique geographic features that facilitate a national test-bed as its terrain ranges from flat land proximate to the Atlantic Ocean and Chesapeake Bay to rugged mountainous areas similar to conditions found in many other parts of the country."²⁷

10. The Commonwealth of Virginia, while supporting the Petition, urges the Commission to consider certain limitations. Specifically, Virginia states that "[g]iven the likelihood of a very large coverage area while operating in the air, we advocate that the use of this spectrum for Air-to-Ground operations be used in an itinerant (non-continuous) manner or in a way that promotes best practices within spectrum management. Furthermore, we suggest above ground level (AGL) and RF (radio frequency) output power restrictions so as to minimize impacts to all neighboring states and jurisdictions."²⁸

11. The Region 20 Planning Committee notes that it has coordinated with Maryland and agrees that "aircraft activities can occur on certain channels without causing interference to General Pool channels for which this body has administrative responsibilities."²⁹ It further states that it will "continue to work with the State of Maryland and manage frequency assignments in a manner that will allow first responder aircraft and ground-based 700 MHz systems to operate without interference."³⁰

12. Public safety organizations also support a grant of the Petition. The Airborne Law Enforcement Association contends that the issues raised by the Petition have nationwide significance and address "an unmet need for first responders working aircraft operations throughout the United States."³¹

²² *Id.* at 18.

²³ *Id.*

²⁴ *See* Commonwealth of Pennsylvania Comments at 1; District of Columbia Comments at 1; State of Delaware Comments at 1; West Virginia Comments at 2. *See also* Maryland State Police Aviation Command, Comments of Mark Gibbons at 3. *See also* Delaware County PA Emergency Services Comments at 1-2; Maryland Institute for Emergency Medical Services Systems Comments at 3; Region Planning Committee 20 Technical Committee Comments at 2.

²⁵ Commonwealth of Pennsylvania Comments at 2.

²⁶ State of West Virginia Comments at 1-2.

²⁷ *Id.*

²⁸ Virginia Information Technologies Agency (Commonwealth of Virginia) Comments at 1.

²⁹ Region Planning Committee 20 Technical Committee Comments at 2.

³⁰ *Id.*

³¹ Airborne Law Enforcement Association Comments at 2.

The National Public Safety Telecommunications Council (NPSTC) supports the Petition and further asks the Commission to authorize nationwide use of the 700 MHz secondary trunking spectrum for public safety air/ground communications.³² The National Association of State Emergency Medical Services Officials (NASEMSO) also supports the Petition, arguing that “the waiver would help Maryland improve that air medical system by enhancing its communications capabilities.”³³

13. Industry organizations also support the Petition. Motorola Solutions, Inc. (Motorola) states that it has “reviewed the technical analysis provided in the Maryland Waiver Request and concurs with the conclusion that it would be impossible to comply with the maximum signal strength limits at the state’s borders that are applicable to other 700 MHz narrowband channels without undermining the purpose and functionality of the intended use.”³⁴ Motorola agrees with Maryland that “other frequency bands available for public safety use are heavily used and existing licensees would likely experience interference from airborne communications operating on co- or adjacent channels,” and notes that all of the adjacent states, the parties that are most likely to be affected by Maryland’s proposed airborne use of the secondary trunked channels, have stated their support for the Maryland Waiver Request.³⁵ Finally, Motorola states that the problem of air/ground public safety radio communications is national and not just unique to Maryland.³⁶

14. The Telecommunications Industry Association (TIA) supports a grant of the Petition subject to certain conditions. Specifically, TIA proposes that “(i) the granting of the Petition include a condition that Maryland make all reasonable efforts to ensure that harmful interference of [sic] other 700 MHz narrowband operations as well as on broadband operations in adjacent blocks in the band does not occur; and (ii) the Commission impose on Maryland appropriate safeguards under the Petition to protect those operations from harmful interference moving forward.”³⁷

15. In reply, Maryland states that it agrees “in principle” with the conditions recommended by TIA and others, and reiterates its position that “[n]otwithstanding the State’s belief that interference will not occur, the Maryland Petition for Waiver specifically acknowledged the provisions of 47 CFR §90.423(a)(3) and the Commission requirement that aircraft will operate on a ‘secondary’ basis and cannot render interference to land based systems.”³⁸ Maryland further affirms that it “will terminate air-to-ground 700 MHz operations on secondary trunking interoperability channels immediately if harmful interference to land based stations cannot be resolved.”³⁹

³² See NPSTC Comments at 4. As noted in note 1, *supra*, NPSTC has separately filed a petition for rulemaking that seeks to authorize nationwide use of the secondary trunking channels for air/ground communications. See Petition for Rulemaking of the National Public Safety Telecommunications Council (filed Mar. 19, 2010). The Bureau has previously sought comment on the NPSTC petition, which remains pending. See Public Safety and Homeland Security Bureau Seeks Comment on NPSTC’s Petition for Rulemaking to Allow Aircraft Voice Operations on Secondary Trunking Channels in the 700 MHz Band, *Public Notice*, RM-11433, 26 FCC Rcd 9405 (2011).

³³ National Association of State Emergency Medical Services Officials Comments at 2.

³⁴ *Id.* at 2.

³⁵ *Id.*

³⁶ *Id.* at 3.

³⁷ TIA Reply Comments at 1-2.

³⁸ Maryland Reply Comments at 5.

³⁹ *Id.*

16. Based on the above, we find that Maryland has satisfied the Commission's waiver standard pursuant to Section 1.925 and that grant of its waiver request, subject to certain conditions discussed below, is warranted. The record indicates that the secondary trunking channels are currently unused and that neither Maryland nor any of its neighbors intend to use them for the purpose specified in the rules. The secondary channels are also more suitable for airborne use than other 700 MHz or 800 MHz narrowband channels, which are heavily used for terrestrial communications and could not be used for airborne communications without substantial risk of harmful interference. Additionally, the record demonstrates that all of Maryland's neighboring states support Maryland's petition and that Maryland has coordinated with these states via the Region 20 Planning Committee. Finally, Maryland has indicated that it will take steps to protect neighboring spectrum users by coordinating with adjacent states that install 700 MHz fixed base stations and maintaining a geographical separation from such stations sufficient to achieve a 60 dBu interference contour.⁴⁰

17. In reaching this decision, we are mindful of the interference concerns raised by TIA and the Commonwealth of Virginia. While we consider the risk of harmful interference to be low, we require Maryland to comply with the following operational and technical conditions on airborne use of secondary trunking channels as further safeguards:

- Maryland must comply with the operational and technical limitations specified in Section 90.423 of the Commission's rules, except that any aircraft transmitting on the secondary trunking channels shall be limited to two watts effective radiated power.⁴¹
- Consistent with Section 90.423, Maryland's air-to-ground operations must accept interference from other licensees and must not cause harmful interference to other licensees. This non-interference obligation extends to all 700 MHz licensees, including public safety narrowband licensees, public safety broadband licensees, and commercial broadband licensees. In this regard, we also require Maryland to employ appropriate engineering techniques to ensure that it does not cause either co-channel or adjacent channel interference.⁴²
- Additionally, Maryland must coordinate on an ongoing basis with adjacent states and maintain the geographical separation necessary to ensure contour overlap protection of any 700 MHz fixed base station operating on the secondary trunking channels in adjacent states.⁴³
- Finally, consistent with Section 90.423, Maryland must terminate its air-to-ground 700 MHz operations on the secondary trunking interoperability channels immediately if it cannot resolve harmful interference to land based stations of any affected licensee.

18. We conclude that grant of Maryland's request subject to the above conditions will provide adequate protection to other licensees while enabling Maryland to conduct airborne communications on secondary trunking channels in support of life-saving emergency operations. The relief granted by this

⁴⁰ Maryland Petition at 15-16.

⁴¹ Mobile stations operated aboard aircraft for air-to-mobile, air-to-base, air-to-air and air-to-ship communications are subject to certain limitations under 90.423. For example, these operations are limited to aircraft that are regularly flown at altitudes below 1.6 km (1 mi) above the earth's surface, operations are secondary to land-based systems, and other conditions, including additional reductions of altitude and power limitations, as may be required to minimize interference to land-based systems. *See* 47 C.F.R. § 90.423.

⁴² Maryland Petition at 15.

⁴³ Contour overlap protection is based on the non-overlap of the 22 dBu F(50,10) interference contour of any aircraft station with the 40 dBu F(50,50) service contour of a 700 MHz fixed base station. *See* note 2 to the short-spacing table in 47 C.F.R. § 90.621(b)(4).

waiver is limited to Maryland, and we do not address comments in this proceeding advocating that the Commission authorize nationwide use of the secondary trunking channels for air/ground communications. Those broader issues will be addressed separately, and this waiver is subject to the outcome of any broader proceeding that the Commission may undertake in the future.

III. ORDERING CLAUSES

19. Accordingly, IT IS ORDERED that, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and Section 1.925(b)(3) of the Commission's rules, 47 C.F.R. § 1.925(b)(3), the Request for Waiver associated with the captioned application filed by the State of Maryland on February 24, 2012, IS GRANTED, to the extent described herein.

20. We take this action under delegated authority pursuant to Sections 0.191 and 0.392 of the Commission's rules, 47 C.F.R. §§ 0.191, 0.392.

FEDERAL COMMUNICATIONS COMMISSION

David S. Turetsky
Chief
Public Safety and Homeland Security Bureau

APPENDIX**List of Commenters**

Airborne Law Enforcement Association
Commonwealth of Pennsylvania
Delaware County, Pennsylvania Emergency Services
District of Columbia
Maryland Institute for Emergency Medical Services Systems
Maryland State Police Aviation Command
Motorola Solutions, Inc.
National Association of State Emergency Medical Services Officials
National Public Safety Telecommunications Council
Region Planning Committee 20 Technical Committee
State of Delaware, Department of Safety and Homeland Security, Division of Communications
State of Maryland
State of West Virginia
Telecommunications Industry Association
Virginia Information Technologies Agency